

**STATE OF NORTH DAKOTA
STATE DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY**

IN THE MATTER OF:

**Periodic Review Hearing Relating to North Dakota's Sulfur Dioxide (SO₂)
Prevention of Significant Deterioration (PSD) Air Quality Modeling Report to the
United States Environmental Protection Agency (DRAFT FINAL October 29, 2004)**

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(As of March 15, 2005)

Additional entries to the Docket will be entered as written comments are submitted through the hearing.

Prepared by:

Environmental Health Section
North Dakota Department of Health
Bismarck, North Dakota

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115	ND Department of Health	<p>North Dakota's SO₂ PSD Air Quality Modeling Report"</p> <p>A report presented to EPA on November 9, 2004, pursuant to a February 24, 2004, MOU.</p> <p>Glossary of acronyms and abbreviations. Report addenda tab index.</p> <p>A. February 24, 2004, North Dakota and U.S. EPA Memorandum of Understanding.</p> <p>B. May 5, 2004 letter to William Wehrum,</p> <p>"A proposed alternative air quality modeling protocol to examine the status of attainment of PSD Class I increments" dated April 30, 2004.</p> <p>"Revisions to pages 39 and 40 in the proposed alternative air quality modeling protocol dated April 30, 2004" dated May 7, 2004</p> <p>C. "Results of air quality modeling to examine the status of attainment of PSD Class I sulfur dioxide increments" dated October 28, 2004.</p>	<p>10004</p> <p>10051</p> <p>10057</p> <p>10163</p>

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		E. August 8, 2002, and September 8, 2003, Orders of North Dakota State Health Officer Terry L. Dwelle.	10329
		F. "Monitored Air Quality in North Dakota: A Summary" dated November 5, 2004.	10355
		G. "A Summary of the Development of the Clean Air Act And Its Prevention of Significant Deterioration Provisions" dated November 5, 2004.	10365
		H. PSD Variance Issue in North Dakota dated November 5, 2004.	10393
116	ND Department of Health	<p>Additional WindLogics, Inc., report per Tab "C", §§ 1.5 and 10.4, titled "Synoptic Analysis of Episodic Easterly Wind Events in Central-Western North Dakota for the Years 2000 – 2002" dated December 16, 2004, including:</p> <p>Animation 1: Surface pressure and 10 m wind vectors</p> <p>Animation 2: 900 mb geopotential height and wind vectors</p> <p>Animation 3: 250 mb geopotential height and wind vectors</p>	10443

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118	ND Department of Health	"Some Studies on Stack Emissions from Lignite-Fired Power Plants," by G.H. Gronhøvd, et al., dated May 1973. Presented at the Lignite Symposium, May 9-10, 1973, Grand Forks, North Dakota.	10525
119	ND Department of Health	"Some Studies on Stack Emissions from Lignite-Fired Powerplants," by G.H. Gronhøvd, P.H. Tufte and S.J. Selle published in "Proceedings: Bureau of Mines-University of North Dakota Symposium, Grand Forks, N.Dak., May 9-10, 1973." US DOI Information Circular 8650.	10557
120	ND Department of Health	"Emission Factor Documentation for AP-42 Section 1.7, Lignite Combustion," by Acurex Environmental Corporation, RTP NC, for the Office of Air Quality Planning and Standards, US EPA, RTP NC, dated April 1993.	10580
121	ND Department of Health	"Survey and Demonstration of Utilization Potential of North Dakota Lignite Ash Resources," dated April 1996 by Debra Pflughoeft-Hassett, Energy & Environmental Research Center, Grand Forks, North Dakota.	10841
122	ND Department of Health	"A User's Guide for the CALMET Meteorological Model," Version 5, by Earth Tech, Inc., Concord MA, dated January 2000.	10958
123	ND Department of Health	"A User's Guide for the CALPUFF Dispersion Model," Version 5, by Earth Tech, Inc., Concord MA, dated January 2000.	11290

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124	ND Department of Health	"A comparison of CALPUFF air quality simulation results with monitoring data for Krakow Poland," presented at the 7 th International Conference on Harmoni[z]ation with Atmospheric Dispersion Modeling for Regulatory Purposes (pages 217 through 221), by Irwin, John S., et al.	11811
125	ND Department of Health	"A comparison of CALPUFF with ISC3," US EPA publication number EPA-454/R-98-020, dated December 1998.	11816
126	ND Department of Health	"A case history of the North Dakota PSD program" published in Environmental Science & Technology, Vol. 16, No. 7, 1982, by Myron F. Uman, National Research Council, Washington D.C.	11866
127	ND Department of Health	Letter by Francis J. Schwindt, Chief, Environmental Health Section, State Department of Health, dated Mar 23, 1993, to Kent E. Janssen, Vice President and Chief Operating Officer, Dakota Gasification Company, with attached letter by the Acting Assistant Secretary for Fish And Wildlife and Parks (FLM for the TRNP and Lostwood WA) to Janssen informing the State and DGC of a final determination that the proposed modifications at DGC would not cause an unacceptable adverse impact on TRNP and Lostwood WA resources.	11874
128	ND Department of Health	Letter by Richard R. Long, Director, Air and Radiation Program, US EPA, Region 8, dated Jun 1, 1999, to Dana Mount, Director, Division of Environmental Engineering, State Department of Health, regarding US EPA, Region 8 guidance on appropriate emission rates when modeling.	11878

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129	ND Department of Health	Draft "Calpuff Class I Area Analysis for Milton R. Young Generating Station," by the North Department of Health and dated May 24, 1999. This draft Calpuff analysis was never finalized (for example, see hearing Exhibit 17 and the two letters pertaining to a January 10, 2001, State and EPA Region 8 meeting that follow below).	11880
130	ND Department of Health	Letter by Francis J. Schwindt, Chief, Environmental Health Section, State Department of Health, dated Mar 13, 2001, to Richard R. Long, Director, US EPA, Region 8, summarizing a meeting with US EPA, Region 8, held on January 10, 2001. (This letter is also in Exhibit 17.)	11985
131	ND Department of Health	Letter by Richard R. Long, Director, Air and Radiation Program, US EPA, Region 8, dated Mar 28, 2001, to Francis J. Schwindt, Chief, Environmental Health Section, State Department of Health, summarizing EPA's view, etc., of the meeting held on January 10, 2001. (This letter is also in Exhibit 17.)	11986
132	ND Department of Health	Appendix W attached to 40 C.F.R. Part 51 as amended at 68 Fed. Reg. 18,440 (April 15, 2003).	11989
133	ND Department of Health	A final version of exhibit 11 titled "The Historical Application of Prevention of Significant Deterioration in North Dakota from 1975 through 1999." Dated 28 June 2004.	12033
134	ND Department of Health	Tables demonstrating attainment of the PSD Class I 24-hour increments with CALPUFF concentrations when using sulfur dioxide actual emissions for 2002 – 2003.	12075
135	ND Department of Health	"Annual Application of MM5 to Support 1994 Calpuff Air Quality Modeling" dated 17 December 2002 and prepared for Kevin Golden, USEPA Region 8 by Dennis McNally and T.W. Tesche, Alpine Geophysics.	12088

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136	ND Department of Health	"Calculation of Prevention of Significant Deterioration (PSD) Increment Consumption and Expansion, Paired in Space and Time." A memorandum dated October 16, 2002 by Warren D. Peters, Clearinghouse Coordinator, Air Quality Modeling Group, EMAD, to Kevin Golden, Regional Meteorologist, Regional Office VIII.	12112
137	ND Department of Health	"Final Report: The Effects of Air Contaminants on the Vegetation of Theodore Roosevelt National Park and Adjoining Areas." Presented to the Air Quality Trust Fund Committee by David E. Bilderback, Principal Investigator, University of Montana, Missoula MT. [Note. This report was completed and distributed to the Committee in April 1990.	12115
138	ND Department of Health	Letter by Richard R. Long, Director, Air and Radiation Program, U.S. EPA, to Terry L. O'Clair, Director, Division of Air Quality, State Department of Health, dated March 15, 2002, regarding the use of continuous emission monitoring system (CEMS) data from EPA's acid rain database for determining compliance with PSD increments.	12215
139	ND Department of Health	Letter by Richard R. Long, Director, Air and Radiation Program, U.S. EPA, to Terry O'Clair, State Department of Health, dated May 14, 2003 regarding EPA's comments and observations of Basin Electric's presentation of their modeling findings on the ND PSD increment issue.	12218
140	ND Department of Health	U.S. EPA's Regional Modelers Memo regarding ND MOU-Regional Modeling Contacts perspective from Bill Harnett, Director, Information Transfer and Program Integration Division and Peter Tsirigotis, Director, Emissions, Monitoring, and Analysis Division printed February 16, 2005.	12227
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